# UTAH SAFETY BELT OBSERVATIONAL SURVEY REPORT - 2003

A PUBLICATION OF THE UTAH DEPARTMENT OF PUBLIC SAFETY - HIGHWAY SAFETY OFFICE

## INTRODUCTION

Motor vehicle crashes continue to needlessly dominate mortality records in Utah as one of the leading causes of death. According to the National Highway Traffic Safety Administration (NHTSA), deaths and serious injuries caused by motor vehicle crashes could be reduced by approximately 50% with proper and consistent use of safety belts. To help increase safety belt use, traffic safety advocates have used a combined approach which involves legislation, public information and education efforts and enforcement.

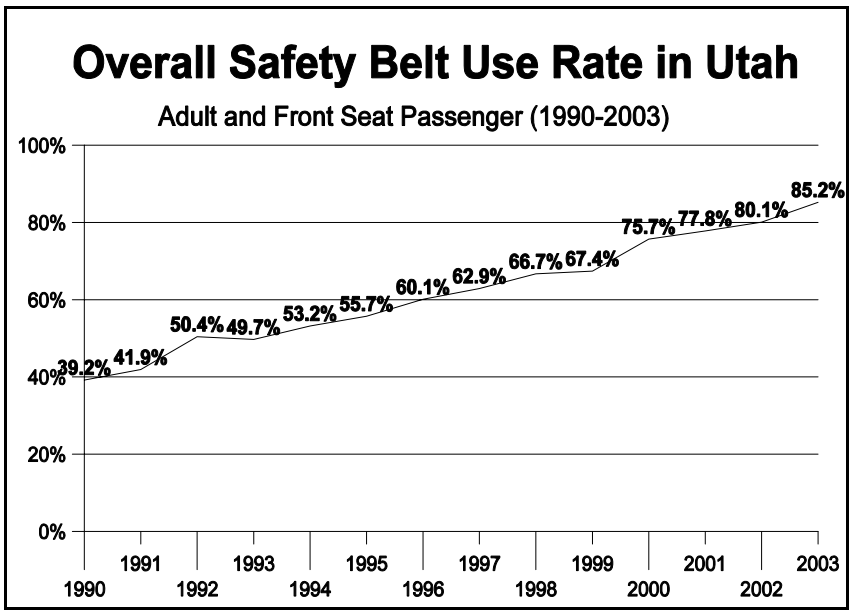
In 1986, the first safety belt use law was enacted in Utah and required all front seat passengers and the driver to use safety belts. Since that time the law has gone through several revisions and currently states that all drivers and passengers must use safety belts. The law is secondary for people ages 19 and older and primary for people under 19 years of age. In addition, children under the age of five must be restrained in an appropriate child safety seat.

Educational programs are also used to increase awareness of the importance of safety belts. Public education efforts include training, presentations, media campaigns, safety fairs, and high visibility enforcement efforts. These activities are conducted by the Utah Highway Safety Office (UHSO), state and local health departments, hospitals, law enforcement agencies, businesses and other partnering agencies committed to making Utah's roads safer.

To help determine the effectiveness of these legislative and preventative efforts, an annual survey has been conducted each year since 1986 to measure safety restraint usage rates. The survey results show that these efforts have been effective in increasing safety belt use. Utah's safety belt usage rate has increased from 18% in 1986 to the current rate of 85.2% (see Figure 1).

## BACKGROUND

In 1991, the NHTSA established guidelines for conducting safety belt use surveys which gave the states much discretion in survey design and implementation. In 1998, these guidelines were changed when the Secretary of Transportation was directed to allocate, over a 5-year period, funds to states whose safety belt use rates meet certain requirements. The allocations to states are based on savings in medical costs to the federal government because of a use rate higher than the national average or from an increase in their reported use rates. To determine this allocation, the states needed to conduct an annual survey which meets the new criteria. The criteria directed that a state survey must be: probability based; based on observed shoulder belt use; designed to produce estimates with a relative precision of +/- 5 percent; designed to study front seat outboard passengers of all passenger vehicles during all daylight hours for all days of the week; designed to include the largest geographic areas containing at least 85 percent of the state's population; and properly documented.



## METHODOLOGY

### Sample Stratification

Utah encompasses an area of 84,916 square miles, and the census for the year of 2000 was 2,233,169. Utah has a varied geographic distribution of its population, with large rural and frontier areas. Over 76% of Utah's population lives within the four counties clustered against the Wasatch Mountains. This leaves the remaining of the 25 counties contributing less than 24% to the state's population.

Based on national criteria to exclude no more than 15% of the state's population, six counties with the largest populations (Cache, Davis, Salt Lake, Utah, Washington, and Weber) were selected for the survey.

### Sample Selection

Road segments were defined by data from the Utah Department of Transportation (UDOT). It was determined that there was an average of 282 road segments in each of the 6 sampled counties. Through random selection, 27 state road segments in each county (162 total) were selected for observation.

The 27 road segments within each county were defined as rural or urban roadways and were randomly selected with probabilities of selection corresponding to vehicle miles traveled (VMT). In addition, a day of week, time of day, and direction of travel were randomly selected for each road segment.

### Day of Week and Time of Day

A day of the week was randomly selected with no more than six sites being observed for 40 minutes in a single day. All time periods were during daylight hours, starting at 7:30 AM and ending at 4:30 PM. To minimize travel time and distance traveled, sites were grouped into geographic clusters.

### Sample Size

Based on previous surveys, it was estimated that approximately 15,000 observations would need to be acquired from the 162 sites for a single survey in order to meet the required accuracy of an approximate marginal error of less than 1%, at a 95% confidence.

### Data Collection

Each of the 162 observation sites included a specific road segment using a mile post, time of day, day of week, and direction of vehicle travel. All passenger cars, pickup trucks, vans, and sport utility vehicles were observed for a period of 40 minutes at each site. Commercial trucks and motor homes were excluded. All drivers and outboard front passengers were observed. All lanes of traffic traveling in the predetermined direction of travel (N, S, E, W) were eligible for observation.

Observers were trained using a Field Observer's Instruction Manual and were provided with survey observation forms and information on each of the 162 sites to help locate the exact location to be observed.

### Statistical Analysis

Completed data collection forms were returned to the UHSO where the data was entered into an electronic format and provided to a statistician for analysis.

## RESULTS

The results of this study show the overall safety belt use rate for Utah, as well as the use rate for each of the 6 counties surveyed. The use rates for female and male occupants are also provided for comparison as well as the rates as seen on interstates versus local roadways.

A total of 74,927 drivers and front seat passengers were observed at 162 sites in 6 counties. Overall safety belt usage for all vehicle types was determined to be **85.2%**. This estimate has a margin of error of +/-0.25%, well within NHTSA specifications of +/- 5%. The rate demonstrates an increase of 5.1% from the 2002 usage rate. As can be seen in Table 1, five of the six counties surveyed increased their usage rates from the previous year.

**Table 1: Safety Belt Usage by County (2002-2003)**

| County | 2002 Rate | 2003 Rate |
|---|---|---|
| Cache | 81.2% | **78.9%** |
| Davis | 84.7% | **88.2%** |
| Salt Lake | 78.6% | **84.7%** |
| Utah | 79.1% | **85.1%** |
| Washington | 78.0% | **79.0%** |
| Weber | 80.4% | **87.7%** |
| **OVERALL** | **80.1%** | **85.2%** |

### Gender by County

When comparing belt use among male and female drivers and front seat passengers, it was determined that females were more likely to wear safety belts than males. Females used seat belts 85.0% of the time, whereas 77.8% of males buckled up. These results are consistent with prior studies and can be observed in the six counties surveyed. The results for male and female occupants are summarized by county in Tables 2 and 3 along with the 2002 results for comparison.

| Table 2: Male Occupants by County (2002-2003) | | |
|---|---|---|
| **County** | **2002 Rate** | **2003 Rate** |
| Cache | 76.4% | **77.1%** |
| Davis | 81.7% | **86.0%** |
| Salt Lake | 75.1% | **81.9%** |
| Utah | 75.8% | **83.5%** |
| Washington | 76.0% | **76.5%** |
| Weber | 78.1% | **85.0%** |
| **OVERALL** | **77.8%** | **82.3%** |

| Table 3: Female Occupants by County (2002-2003) | | |
|---|---|---|
| **County** | **2002 Rate** | **2003 Rate** |
| Cache | 86.8% | **81.2%** |
| Davis | 88.3% | **91.2%** |
| Salt Lake | 83.2% | **88.5%** |
| Utah | 83.6% | **87.2%** |
| Washington | 80.8% | **82.3%** |
| Weber | 83.9% | **91.4%** |
| **OVERALL** | **85.0%** | **87.5%** |

### Road Type by County

When comparing safety belt use among drivers and front seat passengers on interstate and local roadways, it was determined that more people used safety belts while traveling on interstates when compared to local roadways. On interstate roads, 87.9% of people used seat belts, whereas 81.0% of people buckle up on local roadways. These results are consistent with prior studies and can be observed in the counties surveyed (see Table 4).

| Table 4: Road Type by County - 2003 | | |
|---|---|---|
| **County** | **Local Road** | **Interstate Road** |
| Cache | 78.9% | N/A |
| Davis | 85.0% | 90.2% |
| Salt Lake | 81.8% | 88.9% |
| Utah | 80.0% | 87.2% |
| Washington | 74.6% | 82.9% |
| Weber | 85.4% | 89.6% |
| **OVERALL** | **81.0%** | **87.9%** |

Table 4 does not include a usage rate for interstate roads in Cache County since the Utah Department of Transportation's roadway database does not show any major interstates in that county. All roads selected for observation in Cache County were considered to be local.

## CHILD RESTRAINT USAGE

### Background

The UHSO has been conducting child restraint observational studies since 1984. The ages of children observed in these studies has varied throughout the years in order to mirror changes in Utah's safety restraint law. Between 1984 and 1990, children under the age of five were observed for child safety seat or safety belt use. In 1991, methodology changed to include children to age eight and in 1997 the survey was changed to include children to age ten.

To specifically measure child safety seat usage among children, child occupants ages 0-2 years were observed for child seat use between 1986 and 2002. In 2000, the Utah legislature upgraded the law to make child safety seat use mandatory for children through age 4. This was an important step in improving the state's child passenger safety law since all safety experts recommend that children ride in an appropriate safety seat until they are approximately 80 pounds or age 8. To accommodate the law and child safety seat recommendations, it was determined that the methodology needed to be changed, once again. In turn, during the 2003 survey, children ages four and younger were observed for child seat use and children 5-10 were observed for child seat or safety belt use.

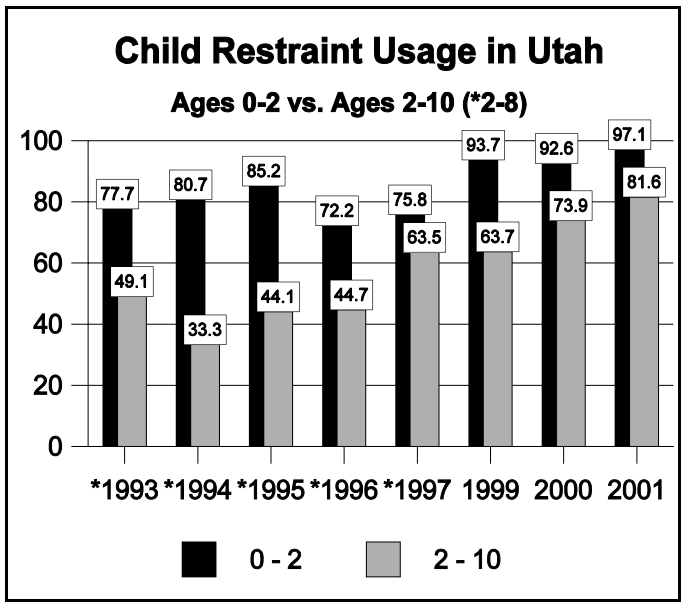



**Figure 2**

Figure 2 shows the trend of safety restraint use among children between 1993 and 2001. Unfortunately, child restraint usage was not studied in 1998 and 2002 due to time and funding constraints.

In addition, recent changes in the age group to be observed for child safety seat use makes it difficult to compare the 2003 child restraint survey with previous surveys. Therefore, the 2003 results are not displayed in Figure 2.

### Methodology

The NHTSA does not require states to conduct child restraint observational studies and does not provide criteria or approve methodology for conducting these studies. To ensure the results are accurate, the UHSO chose to follow the safety belt survey guidelines established by NHTSA in 1998.

A summary of the survey guidelines are as follows: children ages 0-10 were observed for child restraint use in the six selected counties; children ages 0-4 were observed for child safety seat use and children 5-10 years were observed for child safety seat OR safety belt use; safety restraint use among children was observed for 40 minutes at 27 sites per county; only local roadways with speed limits of 40 miles per hour or less were selected; the days of the week, time of day, direction of vehicle travel, and specific location chosen for observation were randomly selected; to assure both child restraint and safety belt surveys were not conducted on the same day, the days in which adult safety belt use were being studied were excluded; passenger cars, pickup trucks, vans, and sport utility vehicles were observed; all seating positions in the vehicle were eligible for observation if the surveyor could positively identify restraint use or non-use.

### Results

During the 2003 study, 4,524 children under the age of 10 were observed for safety restraint use. The use rate for children 0-10 was found to be **84.0%**. When comparing age groups, safety restraint usage decreased among older children. The results show that **88.4%** of children under five years were restrained in a child safety seat, whereas only **79.7%** of children ages 5-10 were restrained in a safety seat or seat belt. Table 5 shows a breakdown of child safety seat use by age group for each county.

**Table 5: Child Restraint Use by Age - 2003**

| County | 0-4 Yrs | 5-10 Yrs | 0-10 Yrs |
|---|---|---|---|
| Cache | 81.9% | 86.1% | 84.7% |
| Davis | 89.7% | 80.4% | 83.0% |
| Salt Lake | 92.9% | 80.5% | 85.0% |
| Utah | 89.7% | 78.7% | 82.5% |
| Washington | 78.2% | 76.4% | 76.9% |
| Weber | 88.9% | 79.6% | 83.8% |
| **OVERALL** | **88.4%** | **79.7%** | **84.0%** |

## REPORT PREPARED BY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